

books specifically about growth and development is also presented. Within the text, readers are provided with cross-indices where a particular subject is discussed at length in another section.

Another valuable component to this encyclopedia is a list of biographies of 24 prominent contributors to the field of human growth and development. Some of these individuals lived in previous centuries, while some are still contributing to the field. These biographies include not only brief personal information, but scholarly achievements as well.

This volume is a wonderful addition to the growth literature. The contributors focus on their primary research interests. Examples include Bogin discussing patterns of human growth (pp. 91–92), Lampl writing on saltatory growth (p. 222), and Floud, Steegmann, and Ulijaszek each discussing secular changes (pp. 391–398). The volume provides a unique encyclopedic approach to the di-

verse field of human growth and development. This in itself is somewhat distracting, as I was constantly looking for citations. This has been more than adequately addressed in the Appendix mentioned previously.

The editors state that this “encyclopedia is for the health professional, the biologist, anthropologist, and educationist; indeed it is for everyone interested in growth and development” (p. 1). I agree completely with this, and I believe that this encyclopedia would be a valuable addition as a classroom reference. In a phrase, this book may be viewed as the “Britannica” for human growth and development. I highly recommend it for anyone with an interest in this exciting field of study.

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THE NATURAL HISTORY OF THE DOUCS AND SNUB-NOSED MONKEYS. Edited by Nina G. Jablonski. River Edge, NJ: World Scientific. 1998. 382 pp. ISBN 981-02-3131-8. \$64.00 (cloth).

Nina Jablonski's edited volume brings together works presented during the 1994 XVth Congress of the International Primatological Society held in Bali, Indonesia entitled, “The Biology of the Snub-Nosed Langurs of China and Vietnam,” as well as several additional chapters concerning the very poorly understood doucs. Many of the chapters present observations and analyses that have not been widely disseminated in the western scientific literature.

The book is comprised of 19 chapters presented in four sections: Evolution and Systematics, Anatomy, Ecology and Behavior, and Conservation. The weakest section is the first, Evolution and Systematics with three chapters. Chapter 2 by Jablonski presents a phylogenetic analysis of 21 colobines and 15 cercopithecines using 455 char-

acters. Her most parsimonious phylogenetic hypothesis contains some rather surprising proposed relationships. First, the African and Asian colobines do not form monophyletic groups as several recent molecular analyses have proposed. She places the olive colobus (*Procolobus verus*) as the sister-taxon of all other colobines and the black-and-white (*Colobus*) and red (*Ptilocolobus*) colobus species to separate clades within the otherwise Asian portion of the tree. The pig-tailed langur (*Simias*) is hypothesized to be the most basal Asian colobine and not the sister-taxon of the proboscis monkey (*Nasalis*). The genera *Semnopithecus* and *Trachypithecus* are also inferred to be polyphyletic. As for the douc and snub-nosed monkeys, the so-called odd-nosed colobines, this analysis suggests that they are not monophyletic. Jablonski suggests that the Eurasian fossil *Mesopithecus* and *Pygathrix* belong to a monophyletic clade with *Nasalis* as their sister-taxon. This clade then groups with the various species of *Rhinopithecus*.

Unfortunately, this reviewer has great difficulty accepting any of the above groupings, because the data used in this analysis leads to such clearly erroneous conclusions among the cercopithecines in general. Jablonski does not present the apparently most parsimonious phylogenetic hypothesis for the data as a whole, but only for the colobines. When the data for the cercopithecines are analyzed, numerous clades are inferred that are clearly known to be wrong. For instance, various macaque species fall throughout the cercopithecine portion of the tree, rather than as a monophyletic assemblage as inferred from several molecular studies. Furthermore, the mangabeys are inferred to be monophyletic, as are mandrills and common baboons, hypotheses clearly ruled out by extensive molecular evidence. Thus, little confidence can be given to hypotheses generated using the same characters for closely related taxa. The character set includes 93 pelage characters (whose use does not seem to be supported by the results of Chaplin and Jablonski's analysis of the integument in Chapter 5) and over 260 morphometric characters converted to character data without size correcting. Examining Jablonski's proposed phylogeny reveals that 7 of the 8 basal members of the colobine clade fall below 10,000 g in weight, while only one member of the remaining clade is a species of less than 10,000 g. Even though the relationships among the doucs and snub-nosed monkeys may ultimately be congruent with Jablonski's proposal, her analysis in no way can be used to justify such a phylogenetic hypothesis used throughout the rest of the book.

Chapter 3 by Wang, Jiang, and Li presents a good definition of the three subspecies of the Golden Snub-nosed monkey, *Rhinopithecus roxellana*. Along with a detailed description and map of their distribution, excellent photographs and detailed morphometric and character-based analysis of three subspecies are provided. Chapter 4 summarizes a series of molecular-based analyses of langurs carried out by Zhang and Ryder based on a portion of the mitochondrial cytochrome *b* gene. Unfortunately, this chapter only includes four species of *Rhinopithecus*, *Py-*

*gathrix nemaus*, *Semnopithecus entellus* (variably called *Presbytis* in the figures), and a macaque as an out-group. With so few taxa from such a short gene region (424 base pairs), the phylogenetic inferences are not very robust and vary depending upon the parameters chosen and technique used. Limiting it to the monkeys in the volume's title rather than utilizing the additional monkey sequences that can be found in recent publications by Zhang and Ryder thus weakens this analysis.

Part II opens with the aforementioned chapter by Chaplin and Jablonski on the integument of the "odd-nosed" colobines. While they find limited support for the principle of metachromism (at least for the loss of agouti coloration), they do not support the unidirectional change from solid to bleached coloration. However, even these conclusions must be tempered by what this reviewer still considers to be the unresolved phylogeny of the "odd-nosed" colobines. Chaplin and Jablonski further conclude that many features of the integument "appear to be the result of natural selection, acting to alter their visibility, thermal properties, or both" (p. 79). Thus, their use should be considered of minimal phylogenetic utility. Despite these criticisms, this chapter ends with thorough description of skin and coat coloration in the Appendix.

Chapter 6, by Jablonski, Pan, and Chaplin is a study of the mandibular morphology of the doucs and snub-nosed monkeys with respect to their diets. This chapter suffers from several methodological flaws. Metrical data on 536 species from 30 Old World monkey species were analyzed by log-transforming species' means and regressing them against mandibular length. The residuals were then observed in a series of box-and-whisker plots, analyses of variance, and a principal components analysis (using species centroids). The results indicate that the Chinese species of *Rhinopithecus* have the strongest mandibles among the colobines, obviously related to their rather tough diet, including lichens. It is not obvious to this reviewer why such a complex analysis using artificial constructions such as residuals, especially of species means, is necessary to

reach such a conclusion. Furthermore, while they may be very popular among primate morphologists, the use of residuals in such analyses may in fact be inappropriate as numerous researchers and studies suggest.

Caton's chapter with a detailed appendix about the gastrointestinal tract of *Pygathrix nemaeus* provides one of the most thorough and useful descriptions about colobine stomachs to date. As with the other phylogenetic analyses in this volume, her analysis of gut features leaves much to be desired. Here the problem is a lack of sufficient phylogenetically informative characters to produce a meaningful analysis. Only 10 morphological characters are used to resolve a tree with 6 taxa containing 10 branches. Furthermore, if the data are considered to be unordered (i.e., their polarity is unknown), one shorter and four equally parsimonious trees to that found by Caton exist. Therefore, while Caton's description and interpretation of the morphological features of the colobine digestive system are extremely useful, her phyletic interpretation is open to question.

Part III of the volume opens with Kirkpatrick's incredibly thorough overview of the ecology and behavior of these monkeys. This may be the single most useful chapter of the book. Lippold supplies an up-to-date ac-

count of recent research into how much more widely distributed and socially and ecological variable the douc langurs of Vietnam are than previously thought. The next several chapters present the results of various field observations regarding the ecology and behavior of *Rhinopithecus* in both Vietnam and China. The final and shortest section of the book contains four short chapters on the conservation status of the snub-nosed monkeys and doucs. The honest pessimism expressed regarding the future status of some of the species does not prevent useful suggestions for the rest from being pursued. The book ends with a 30 page gazetteer by Kirkpatrick, which like his review of their ecology and behavior, is sure to become an indispensable aid for researchers studying these fascinating, and, now hopefully better understood monkeys.

Despite this reviewer's misgivings about several of the analytical chapters, overall this book supplies a great deal of useful data and observations regarding the snub-nosed monkeys and doucs.

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INTRODUCTION TO THE PRIMATES. By Daris R. Swindler. 1998. Seattle, Washington: University of Washington Press. 284 pp. ISBN 0-295-97704-3. \$22.00 (paper).

Daris Swindler's new book fills a long-standing gap in the primatology literature and will be welcomed by teachers of undergraduate anthropology courses on the functional and evolutionary biology of primates. *Introduction to the Primates* is a synthesis and summary of a large literature on the morphology, growth and development, social behavior, and fossil history of the primates told by a leading researcher and masterful teacher of this material. Geared toward an undergraduate audience, the book clearly and concisely tells a story about the evolu-

tion and adaptations of non-human primates, touching on many aspects of comparative primate biology that will be of interest to undergraduate students. Written in a casual, at times anecdotal style, this should be a popular textbook choice for many biological anthropologists who share Swindler's orientation toward primate anatomy and growth and development. Swindler has dedicated this book to two recently deceased close friends and colleagues of his (and of many readers of this journal), Jim Gavan and Elizabeth Watts.

Swindler's goal in this text is ambitious, involving nothing less than providing a complete survey of primate biology for students with little or no prior background in biology or biological anthropology. It is to his credit